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In contrast to evolutionary or natural change and homeostatic or adjustive change, a planned program of change designed to move education in a new direction, and accordingly called "neomobilistic change," provides for the realistic achievement of educational improvement. The two primary criteria of this model are relevance and impact. Reasons why this neomobilistic change does not occur include the poor performance of previously formulated solutions to educational problems, lack of involvement by professionals responsible for the total educational program, and failure to use resources already available. The proposed change model is comprised of five elements, each with specific functions, linked in a general loop configuration: Utilization, information, research, development, and diffusion. Implementation of the model requires the establishment of a nationwide network of centers for research, development, and dissemination, with adequate attention given to the network's operational aspects of staffing, funding, and political support. A university school of education is able to make a unique contribution to the change model process, especially in the areas of research and personnel training. (JK)

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A MODEL OF CHANGE FOR INSTRUCTIONAL DEVELOPMENT

Egon G. Guba

A Paper Prepared for the
Educational Media Conference
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What is Change?

I believe I can best begin with a discussion of the nature of change. The term change implies that there is some perceptible difference in a situation, a circumstance, or a person between some original time t_0 and some later time t_1. Now it is obvious that in the normal course of events hardly anything can be measured that will not display some difference between two successive times, if only the time interval is long enough. We are accustomed to saying in our more cynical moments that schools are really no different today than they were at the turn of the Century, but this is patently not true. Even in the 39 years that have passed since I first entered an elementary school the changes that have occurred have been phenomenal. But if you find that assertion unbelievable we can simply make the time interval larger--if the schools of today are not different from those of 1929 they are surely different from those of 1829 or 1729.

Such changes, however slowly or rapidly they may seem to occur, may be characterized as evolutionary changes. They are possibly not measureable by the ordinary methods of the behavioral sciences, unless one wished to include history or anthropology. In any event they occur without conscious direction or without reference to some kind of design; they simply happen, in the same sense that animal or plant evolution simply "happens." The occurrances are not random, of course, but neither are they planned or intended.

A second kind of change occurs under conscious direction and sometimes with very immediately noticeable and measureable effects; I choose to

call it homeostatic change. Such change occurs as a response to some specific triggering. Harbans Bhola likes to refer to such change as reactive, implying by that term that it is mainly automatic and instinctively rather than thoughtfully guided. My colleague at NISEC, John Horvat, describes it as "reaction to disturbances in a system." The term homeostasis is of course borrowed from the biological sciences, where it is used in the sense of regulation and adjustment. In this sense homeostasis is a good thing to have, as for example, to control body temperature or to restore blood pressure to a normal level after a stressful period. Thus homeostatic change is an adjustive or regulative change made to get a system back to its pre-programmed or "normal" level. And it is of course absolutely vital to the healthy functioning of an organism or organization.

For my purposes what it is essential to note about homeostatic mechanisms is that they make sense only on the assumption that the system they service is essentially sound, even if subject to mild--or even severe--perturbations once in a while. But there comes a time when that assumption of soundness is clearly so inappropriate that homeostatic mechanisms get in the way rather than help--as in the case where the normal clotting of blood produces a thrombosis in a heart patient, when the body's normal rejective mechanisms abort life-saving transplants, and when the production of lubricating histaminic fluids is over-stimulated in allergic reactions. Then the assumption that the system is basically all right is very questionable.

There is a third kind of change--a kind that Dan Stufflebeam of Ohio State University and I have come to call neomobilistic change. Such change also results from conscious direction, and may also be triggered by some

specific factor, but its essential feature is that it moves the system, organization, or organism in a new direction. This is the intent of the term neomobilistic, a word that Dr. Stufflebeam and I made up mainly because it sounded right. Such change starts on the assumption that mere reaction is not enough; that the system may be so out of balance that an entirely new organization, structure, or mechanism may be required. I sometimes say that a good analogy for homeostatic change mechanisms may be found in industry in the process control system. A good analogy for the neomobilistic change mechanism may then be found in industry's R&D system. Neomobilistic change is, by its nature, always pre-planned or pre-programmed and, also risky.

What is Educational Change?

If this analysis of types of change has validity, we may well ask next which of these kinds of change we mean when we talk about educational change. It may seem at first glance that evolutionary change can be easily dismissed, but even this form of change has its adherents. My old friend Andrew Halpin, for example, argues very eloquently against planned change, pointing out that the most significant and lasting changes come from pervasive technological advances, demographic and physical changes, and the impact of great ideas. He says,

> Technological change has acquired a staggering momentum all its own. And this momentum mocks the folly of any "Planner" who gets in its way. And demographic and physiographic changes also introduce consequences in social behavior, and even in individual psychological behavior--consequences with a momentum and an inevitability all their own. Moreover, great ideas, and the men who create them, introduce widespread social change. For example, consider Galileo, Charles Darwin, Karl Marx, Sigmund Freud, Jean-Paul Sartre, and Erich Fromm. Each in turn spoke or wrote, and once he had spoken, whether his ideas were accepted or rejected, the social scene was no longer the same as it had

> been before he had spoken. In brief, ideas have consequences, and the social consequences of great ideas are seldom clearly predictable. Furthermore, in each instance the author lets his ideas go free from the cage of his own mind, free to fly like birds whither they will. To say this in another way, the creator of a great idea is motivated by intellectual curiosity, not by an intention to control or manipulate human behavior within the social and political sphere. Thus, the impact of technological change, of demographic and physiographic changes, and of the changes stimulated by great ideas is such that the social consequences are let free to develop as they may. No intention in respect to what will ensue enters the picture.[1]

But this argument seems specious to me. It seems to say that because one can point to some striking examples of how evolutionary change has influenced the world dramatically, that evolutionary change is enough; indeed, that "Planning" with a capital "P" is carried on only by misguided do-gooders or big brothers who will sooner or later be exposed as fradulent by the inexorable advances that stem from the "true" and legitimate sources of change. This stance seems to be a kind of ostrich defense that I do not believe we can tolerate. I prefer the posture of Harold and June Shane, who define <u>future-planning</u> as a

> . . . procedure for creating curricular and instructional strategies that are more than hindsight remedies for today's problems. It employs a sophisticated means for combining values as well as data from education and related disciplines. These, together with the power of controlled imagination, are deliberately employed to create the particular educational future that our beliefs recommend from among the many less desirable alternative futures in which education, by default, may find itself.[2]

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[1]Andrew Halpin, "The Mythology of Change," <u>Phi Delta Kappan</u>, in press.

[2]Harold G. Shane and June Grant Shane, "Future-Planning and the Curriculum," <u>Phi Delta Kappan</u>, 49 (March, 1968), 372-7.

The argument that educational planning, if properly applied, can optimize the future seems so compelling to me that we must pursue it even if the probability of success is only slight. I am persuaded that what we need are the constructed futures that use the best available intelligence to overcome emergent difficulties and that capitalize on available opportunities. This course of action is surely preferable to standing and waiting in the fond hope that things will, in some mystic way, take care of themselves.

But if evolutionary change is not what we mean when we talk about educational change, then, so it would seem, homeostatic change is. For years we have been saying that given enough time and resources we would be able to manage most of education's ills; we even persuaded Congress to pass the Elementary and Secondary Education Act (ESEA) largely on this basis. Moreover, as you well know, every research or development proposal, every educational laboratory prospectus, every Title III program, starts with a recital of certain ills which it is proposed to cure, using well-known means. Is it true that some children can't read? Well, let's construct a package of new materials. Is it true that some children are culturally deprived? Well, let's give them a Head Start. Is it true that some children are discriminated against? Well, let's start integrated schools and bussing programs. Is it true that many children drop out of school? Well, let's make a film that will motivate them to stay in. In all of these cases, and the many more that each of you can readily call to mind, we always assume that the system is basically all right but that it has its little perturbations or disturbances. What is needed is a program that will restore things

to balance. But is this in fact the case? Is the assumption of basic system goodness not stretched just a bit too far? Are we not simply engaged in constructing what the Shane's dismissed, in the quotation I read a moment ago, as more "hindsight remedies?"

My own experience of the past several years convinces me that we are indeed beyond the point of mere balancing or realignment. Let me give just a few examples of what I mean, two drawn from excellent articles in recent issues of Saturday Review, and one from a conference on Mexican-American education.

I was struck some weeks ago, on reading an article in SR entitled "The Futility of Schooling in Latin America," with some interesting parallels between that situation and our own.[3] The author, Monsignor Ivan Illich, comments on the desire in Latin American countries to use the schools in ways similar to those of the United States, that is,

> . . . to lead the non-rural majority out of its marginality in shanty towns and subsistance farms, into the type of factory, market, and public forum which corresponds to modern technology. It was assumed that schooling would eventually produce a broad middle class with values resembling those of highly industrialized nations, despite the economy of continued scarcity.

That statement must sound familiar to all of us, expressing as it does a goal commonly held for American education. But Monsignor Illich goes on to say (and I am now quoting random comments from the paper):

> Accumulating evidence now indicates that schooling does not and cannot produce the expected results.

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[3]Ivan Illich, "The Futility of Schooling in Latin America," Saturday Review, (April 20, 1968), pp. 57 ff.

> . . . a second look reveals that this school system has built a narrow bridge across a widening social gap. As the only legitimate passage to the middle class, the school restricts all unconventional crossings and leaves the underachiever to bear the blame for his marginality.
>
> . . . We must not exclude the possibility that the emerging nations cannot be schooled; that schooling is not a viable answer to their need for universal education. Perhaps this type of insight is needed to clear the way for a futuristic scenario in which schools as we know them today would disappear.

Monsignor Illich goes on to comment that "This statement is difficult for Americans to understand." There is no doubt about <u>that</u> fact; the problem is that the statement is difficult for American educators to understand <u>even in reference to their own system</u>. We persist in the assumption that our system is basically good even though the same kind of evidence which Monsignor Illich cites to corroborate the bankruptcy of formal schooling in Latin America might be found in equal depth in the United States. Who can doubt it, given recent events?

The second item that I would like to cite is drawn from another <u>SR</u> article of just a few weeks ago, entitled "The Four-Year Generation."[4] This is the lead piece in the issue on "The Political Season 1968;" in it Peter Schrag attempts to make the case that "we are in a brand-new ball game produced not only by Johnson's withdrawal or even by the compression of time and events, but by the seismic tremors of a new mood, a new style, and a new kind of man." Let me quote several particularly relevant paragraphs from this very insightful statement:

> The big political change of the past four years is that the New Deal has finally come to an end. Johnson's

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[4]Peter Schrag, "The Four-Year Generation," <u>Saturday Review</u>, (June 8, 1968), pp. 22 ff.

well intentioned liberalism has turned out to be almost as anachronistic as the neanderthal Goldwaterism we rejected in 1964. History and tradition had seemed to indicate that through relatively cheap social action we could remedy severe domestic problems, resolve world crises, and rescue nations in the cause of righteousness. Our gray achievements in the war on poverty and our dismal record in Vietnam have indicated simultaneously that history and tradition can sometimes be fearful liars.

Lyndon Johnson, who acted as if Vietnam were Munich and the Great Society were the New Deal, has been defeated not only by events, but by the growing gap between those events and the social understanding required to confront them. It is not simply that rural Congressmen don't understand the problems of the cities or that Main Street lags behind New York, but that the idea of programmatic responses to major problems is itself under challenge for the first time. Until recently we believed that large reforms came in small packages labeled "education," "health," or "housing" which could be bought painlessly as funds became available. Acquiring them would not affect (we thought) the privileges of others.

> In four years of the Great Society, we have begun to discover that the advantages of those who have power and resources are inextricably tied to the disadvantages of those who do not. We learned that it is impossible to maintain suburban homogeneity and integrated communities at the same time; that part of the wealth of New York and Pittsburgh depends on the mining of cheap Appalachian coal and the exploitation of mountaineers; that the wines of California are made with the sweat of migrants; and that it is impossible under existing practices to use schools and colleges as instruments to select some for economic advancement without using the same schools to reject others. (Emphasis added.)

We see here that the assumption of the basic goodness of our educational system can and should come under serious scrutiny. At the very least, Mr. Schrag aptly reminds us, the glib assumption that small packaged programs which seek to remedy isolated disturbances in the system are sufficient, is simply inadequate to the challenge.

A third example to which I wish to draw your attention is based on the remarks made at a conference on problems of the Mexican-American by a gentleman named Abelardo B. Delgado, who characterizes himself as a "lone, uninvited, unscheduled, problemed Mexican with a good chunk of the future at stake."[5] Delgado made his own way from El Paso to the conference in San Antonio, by, as he put it, "laying off two days of work and getting in debt to attend." Let me quote a few of his thoughts as he stood on that podium, an uninvited speaker:

> . . . I am sick and tired of many conferences which are phony and where the so-called experts write a paper to air the problems, filling them with statistics to dazzle all, while my children continue receiving a second-rate education, and I continue under-employed and ill-housed. Many conferences turn out to be a good opportunity for politicians to say a few kind words to the mejicano and maybe release handout number 109.
>
> Secondly, and I am truly hoping this is not the case here, most persons walk out of such conferences very satisfied, saying they are going to do something about it soon. What ran through our minds while we drove the 600 or so miles and changed flat tires, was that here is one more aspirina for our well-rooted ills and nothing else; and if it is, let us tell the world about it . . .. Let them hold conferences and fool each other; but for God's sake, do not hold them in the name of the Mexican-American unless they are going to give him a voice and make him a participant in solving his own problems and not hurt him anymore than he is hurt already by giving him one more tranquilizer.
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> I have two daughters who talk of nothing else than finishing high school so that they can get a job as sewing machine operators in the local garment factories. Ladies and gentlemen, is that the true challenge for them? Does the State satisfy itself with turning out hundreds of sewing machine operators and bus boys: not that I have anything against either, but is the challenge enough? Unfortunately, whether it is or not, it is true and they

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[5]Abelardo B. Delgado, "A Personal Statement," Proceedings, Texas Conference for the Mexican-American, San Antonio, Texas, April, 1967. These Proceedings are published by the Southwest Educational Development Laboratory, Austin, Texas.

> know that the kind of discrimination they are facing is hidden in a college entrance exam which they know for sure they will not pass.
>
> One more generation and our true identity is really lost--a middle class we cannot reach, ashamed of being Mexicans and sure of not becoming Anglos.[6]

I do not claim any credentials as a visionary, but it certainly does not require any special insight to see that the problems being addressed by Monsignor Illich, by Mr. Schrag, and Mr. Delgado are all of a piece. I need not recite all of the corroborating evidence which confronts us on all sides--the dropouts, the riots, the sit-ins even in our seats of learning--the Universities, the under- and un-employed, and the like. If these statements do not suggest to you that we are beyond the stage of mere disturbances in an otherwise good system, there is little more that I can say that will interest you.

Well, I do not mean to deprecate the idea of homeostatic or reactive change unreasonably. Whatever we do about education we will not do overnight; the system continues and requires continuous adjustment, refinement, and guidance. There are many problems that can be managed very well by such an approach. But to suggest that this is all that we mean when we talk about educational change is unthinkable; for unless we can produce more dramatic and startling changes than we have until now, the system may well be doomed.

Apparently then, what I, at least, have in mind when I talk about educational change is <u>neomobilistic change</u>. Generally such changes have not occurred in education or anywhere else. They are perhaps too dramatic,

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[6] <u>Ibid.</u>

require too much consensus, impinge upon so many economic, political, and social areas as to be non-viable. I do not delude myself into believing that I am the only one who has seen the need for neomobilistic change in education and who has tried to respond to that need. Why then do we not find more evidence of neomobilistic change about us?

Factors Affecting the Emergence of Meaningful Change

The major reason for this state of affairs is the one I have already pointed up, that is, the common assumption made by educationists that the educational system is basically sound and requires only adjustment. I certainly have labored <u>that</u> point sufficiently.

A second reason that I see is poor past performance. Insofar as the educationist community has tried to devise solutions to pressing problems, even if only homeostatic solutions, we must confess that we have not been very successful. Part of the problem of producing hard data to demonstrate success of course lies in the foolishness of present evaluation procedures, a point which I have pursued many times in other contexts. But to a large extent the depressing parade of no significant difference findings may be traced to the fact that our solutions really do not have very much to warrant them.

A third reason that suggests itself is that in past efforts at change there has been no real involvement of the professionals who must make the whole program go. Now don't mistake me here--I am not arguing for any grass roots approach that foolishly assumes the existence of many operating but undiscovered innovations "out there." It is often said that with some 2,000,000 teachers and administrators operating every day in public

elementary and secondary education settings there must be many good solutions that have already been devised by creative and dedicated practitioners. To that I say "Hogwash"--not because I don't believe that there are creative and dedicated practitioners but because I don't believe in spontaneous generation. Good practical ideas are not just born; they are made in every sense of the word. The typical practitioner simply does not have the time or resources to generate the kind of problem solutions that we are looking for now. In any event, you can be sure that if all those undiscovered innovations really were out there the ASCD or some similar militant group would have called them to our attention long ago. I can only ask, "Where are they?"

When I say that there has been no real involvement I mean that the practitioner has not had the opportunity to indicate what the dimensions of educational problems are from his point of view. He is constantly urged nowadays to try this or that new invention (indeed, the Kettering Foundation boasts openly about its "product line" of new innovations) but with no reason given to him to try it other than that it has received wide publicity, has been well spoken of by experts, or (rarely) that it has been found useful in certain situations by other practitioners. But the best medicine in the world for diabetes or angina is of no use to the person who does not have those ills; simply to say that the medicines are effective, well known, or highly thought of makes no difference. If the practitioner has been refusing the medicine we have bid him take because we have never asked him about the nature of the illness, can we wonder at his good sense? Who among us would not leave off at once from a physician who insisted on prescribing without

hearing a recital of symptoms? If we mean it when we say that the practitioner in education is a professional we ought at the very least suppose that he exhibits some intelligence and professional acumen in dealing with his pupils. What he needs is medicine to fight the illnesses which he diagnoses in them. We cannot expect him to cooperate with us if we do not show any responsiveness to him.

In this context I am especially exercised about the role that has been played by Schools of Education, which I regard in many ways as the most conservative, even reactionary, elements in the educationist community. I noted that Harold Howe in his recent keynote address to the American Association of University Professors told them, as reported in the press, that they could not long continue urging everyone else to gallop off into the future while contenting themselves with a "gentlemanly canter." Professors of education are quick to berate public school personnel for being so unresponsive to the need for change, but their most powerful strategy when they are asked to examine themselves is to appoint a committee. Schools of education have been dosing out the medicine for a long time, but, like the appetizer that is not a Jeno's Pizza, this medicine is quickly relegated to the nearest potted plant. Every student of education learns that many of his courses are Mickey Mouse; at best, he is resigned to a hopeless redundancy and overlap in his work. The new teacher fresh out of training is soon socialized by his older colleagues, who point out that he can now forget all that theoretical nonsense and find out "what things are really like." While the exact extent of this problem has not been determined it is perfectly clear that it is real. We cannot long continue to teach things that are

irrelevant to the classroom; or that provide medicine that cures yesterday's ills but that has no therapeutic value today. And particularly we cannot continue to ignore the practitioner who desperately wants help with his problems but who gets little comfort from a professor who keeps insisting that he is asking all the wrong questions.

A fourth reason that I sense for the lack of meaningful change is our unwillingness to extend the right of participation to the ultimate subjects of our ministrations--the students and their community. The paragraphs I quoted earlier from Abelardo Delgado on the teaching of Mexican-Americans is a good case in point. Somehow we always know better than they what is wrong. Another fine example comes from William Madsen who makes the following observations about a teacher of Mexican-American children:

> Mrs. Lewis is a dedicated teacher who had a deep affection for the Mexican-Americans in the Magic Valley. "They are good people," she said. "Their only handicap is the bag full of superstitions and silly notions they inherited from Mexico. When they get rid of these superstitions they will be good Americans. The schools help more than anything else. In time, the Latins will think and act like Americans. A lot depends on whether we can get them to switch from Spanish to English. When they speak Spanish they think Mexican. When the day comes that they speak English at home like the rest of us they will be part of the American way of life." Mrs. Lewis paused with a worried look and added, "I just don't understand why they are so insistent about using Spanish. They should realize that it's not the American tongue."[7]

One can predict tolerably well what success Mrs. Lewis would have in teaching English to her Mexican children. And who could be surprised if these children were found to reject school, or to find no utility in its

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[7]Cited by Severo Gomez, "The Meaning and Implications of Bilingualism for Texas Schools," Prodeedings, op. cit., p. 42-3.

program? Without their perspective we cannot hope to delineate the problems to be solved very accurately.

Mention of the matter of perspective brings me to the fifth reason why neomobilistic changes apparently do not occur: viz., that we bring to bear on our problem only a very limited perspective. Let me again turn to my recent experience in relation to the problem of migrant education for an example. The State of Texas has for several years supported a number of experimental schools that are attempting to devise solutions to migrant educational problems. One such solution has involved the typical educationist response of seperation--separate programs, preferably separate classes, and if possible, even separate school buildings and perhaps separate school districts for such migrant children. Is this not the best way to respond differentially to their special needs while not violating the constraints of available staff and resources? But this educationist solution is quickly shattered when someone points out that since migrant children are 99.1 per cent Mexican-American, this separation in fact constitutes segregation; it is therefore in conflict with one of our strongest social principles. Unless this segregationist perspective is in our thinking it is likely that we as educators will continue to perpetrate the same errors in this arena that have unfortunately characterized our response to the black people of this country for decades. And if this tendency to utilize our tried and true solutions may be noted even in as active an arena as that of integration, how much more so must this be the case in less sensitive or visible areas? Educationists must strive valiantly to broaden their perspectives; indeed, they must solicit and <u>respond</u> to the perspectives of just as many relevant groups as they possibly can.

A sixth reason which I see for the failure of neomobilistic change to emerge is that we have not made wise use of the resources that are already available to us in education. Having persuaded the Congress, for example, to make available billions of new dollars through ESEA, some of which, particularly in Title III, were specifically earmarked for innovative ventures, we manage to labor mightily and produce just a little more of the same that we have always been producing. Judged in terms of the total amount of money spent on education in this country from all sources, the new funds available under ESEA add only 3-5 per cent (depending on what figures one uses) to the total. If these funds are used only to purchase more of the same is it any wonder that nothing dramatically different can emerge? Five per cent more teachers, for example, means that where you formerly had 20 teachers you now have 21; is this likely to facilitate much drastic realignment? Are five more textbooks to augment the hundred you already have going to make much difference? Of course this tendency to do more of the same is tied to the same basic assumption that all is really right with the world; when one is already doing the best things one can, who would counsel change?

A seventh and final reason that I wish to cite is our failure to relate to education the many resources that might be available but which for some reason have not been brought to bear. The best example I can think of is the emergent educational industry which, after great initial fanfare, seems to have sunk silently into the background. This is true despite the fact the Congress has repeatedly urged the new agencies founded with ESEA appropriations actively to seek ties with these industries, and despite the

evident interest which these industries would have in relating to the country's largest industry, save only defense.

I believe that the major reason why this alienation has occurred may be found in the fact that industries do not know how to respond to educational problems, while at the same time educational agencies do not know how to translate educational problems into terms that industry can understand. It is much like asking a builder to build you a house in the absence of a set of blueprints; the builder doesn't know how to do that, at least not economically and efficiently. What is needed, in effect, is the educational equivalent of the architect who can take the home-buyer's desires and needs (and income) and translate them into a blueprint on which the builder can estimate costs, prepare a production schedule, order materials, assign workers, and the like.

I have been much appealed to in my own thinking by the analogy of the old-fashioned radio amplifier tube. In such a tube, you will recall, a local and powerful source of voltage produces a current in a circuit consisting of a heated filament that emits electrons and a charged plate that attracts them. So long as the local power source is maintained a current will flow.

This current is essentially unregulated; it flows to whatever proportion Ohm's Law, which governs these matters, permits. But in the amplifier tube an additional element, the grid, is interposed between the filament and the plate; this grid can also be caused to accept a charge and hence can be used to accelerate or decelarate the flow of electrons from the local power source. If the grid voltage is subtly changed, the same

change, but in larger volume, will be noted in an increased or decreased flow of current through the tube; the subtle variations are in effect amplified because of the modulating effect of grid voltage on the circuit. Indeed, the very tiny voltages picked up by the receiving antenna from a radio station many miles distant can be amplified by this means to a level sufficient to drive a large loud-speaker.

Now imagine that the local source of power for educational change, analagous to a local voltage source, is the money and other resources available through educationally-related industries, including the older publishing industry as well as emergent companies. Imagine that some agency accepted the role of the grid, interpreting educational needs and problems in such a way that the much more resourceful agencies were modulated to produce approaches, materials, books, and the like, that were responsive to the interpreted needs and problems. The resources now being spent anyway would then be focussed in most useful ways, to the benefit of education generally, to the benefit of the student and the practitioner, and of course also to the benefit of the education industry. But thus far no one has accepted this interpretive and modulating role; meanwhile resources continue to be expended in more or less random ways and useful changes do not result.

What, Then, is a Useful Model for Change?

Given that we wish to produce neomobilistic change, and given the validity of the constraints that I have outlined, what does constitute at least a reasonable working model for change that the educational developer might have in mind?

Such a model must be responsive to the criticisms I have just made of the current scene. I believe these criticisms can be summarized with just two words: RELEVANCE and IMPACT. Any model we propose must be able to stand scrutiny based on these two essential criteria. I believe a model can meet the criteria of relevance and impact if it can show promise of increased involvement of professionals, increased participation from the ultimate subjects of education, enlarged perspectives, better use of available resources, and ability to modulate resources that might be available.

A system that will do all that, even minimally well, is neither simple nor inexpensive. On the other hand I believe it is possible and well within the range of resources that are now already being spent.

Elements of the System

The Utilization Arm. The first essential of such a system is a local mechanism, in direct contact with the operating professional in the classroom or the administrative office. For want of a better name I shall refer to this mechanism as the utilization arm, nicknamed the "halfway house." This arm would have a number of tasks:

1. It would depict local problems and needs. It is through this device that the local professional has the opportunity to become involved in making known his perceptions of problems and needs. Staff members of the halfway house would devise means to open and maintain communication with local professionals for this purpose. The object of the game would be to develop reported symptoms into a problem syndrome to which a response could later be made.

2. It would serve as an input to another arm of the system which I shall describe later as the information domain.

3. It would accept inputs from still another arm of the system called the diffusion arm. These inputs would be developed, tested, and demonstrated problem solutions. The solutions of concern to any particular local utilization arm would depend on the nature of the problems and needs which had previously been depicted in interaction with local professionals.

4. It would assist the local professionals in local trial, installation, and initial debugging of problem solutions judged to have local utility. The halfway house would work with the diffusion arm, which I shall describe later, in seeking available solutions to local problems. Insofar as such solutions could be identified the utilization arm would be concerned with the process of adaptation to the local situation. This adaptation would involve steps such as local trial, to be sure that the purportedly effective solution did in fact function well in view of local conditions; installation, including such matters as training local personnel appropriately, making necessary administrative adjustments, fitting the solution to the local situation, and the like; and debugging, that is, servicing the installed solution until it could be taken over routinely by other local agencies.

5. In the event that solutions were not already available, or in the event that a particular problem had only local meaning or significance, the halfway house would devise and test solutions directly. In this role the utilization arm would function much like the development arm which I shall describe shortly.

Despite the fact that such a utilization arm is obviously essential to productive change, there are very few extant examples of such units already in existence. The concept of supplementary centers contained in ESEA Title III legislation is suggestive. Such centers may be found here and there, as for example, the fifteen regional centers that blanket New York State; the Fairfax County, Virginia, Center for Effecting Educational Change (CEEC): the Tucson, Arizona Project EPIC (Evaluative Programs for Innovative Curricula); the Monterey, California Project EDINN (EDucational INNovation); the Anniston, Alabama Project PLATO (Personalization of Learning Achieved Through Organic-Evaluation), and the like. On the local scene the use to be made of the reorganized University School by the Bloomington Metropolitan School District seems to be a good example also.

The Information Arm. A second arm that is essential to a system for the stimulation of productive change is the information arm, which might also be thought of as a conceptual resource center. The functions of this arm would include:

1. It would engage in the development of problem specification packages. I have already noted that the utilization arm would provide certain problem specification inputs to the information arm. Each of those information units would receive inputs from a large number of halfway houses which would need to be aggregated into more generalizable form. The parameters of these problems would be specified in detail and in a form to which other agencies could respond. In this sense the information arm would correspond to the architect in my earlier analogy. The information arm staff would initially need to devise ways of developing specification packages in ways that are understandable by potential respondees, just as the architect needs to know about the conventions of plumbers, carpenters, masons, and the

like, to know how to design specifications for them. Since these procedures are still unknown, their development constitutes one of the major early tasks of such units.

2. It would engage in the development of information packages (modules) which relate to problems to be solved. There are a number of important sources of information that are indispensble to pinpointing a problem and suggesting possible solutions. Obviously what is needed is to bring to bear the best intelligence available. These sources include:

a. Research. A great deal is made of the fact that research is not much used in the solution of educational problems. I have dealt with this problem in detail in other contexts and will not labor it again here. It is clear at this juncture in educational history that it is non-functional to castigate either the researcher or the practitioner for the failure to get research into practice. The obvious fly in the ointment is that there is no useful linking agency to make this transformation. The information arm that I am proposing would serve this linking role. It seems to me that research information should be compiled into two kinds of modules or packages: (1) Modules that organize available knowledge along conceptual and theoretical lines, as for example, modules relating to concepts like "reinforcement," "alienation," "utility functions," and the like. (2) Modules that organize available knowledge along applied lines, as for example, "teacher-learner interaction," "reading pathologies," "the school as a socializing agency," and the like. The former theoretical modules would probably have most utility for other researchers, while the latter would be of greatest value

to practitioners, especially those who are engaged in inventing solutions to operational educational problems. Both kinds of modules would be "pre-interpreted," that is, their understanding would not depend on the reader's prior knowledge or expertise in the area. Such a requirement is unreasonable, since no one can be expected to be an expert in all areas of knowledge that may impinge on his own area of work.

b. Practice, precedent, and experience. In the large majority of cases the practitioner's first instinct, when he is faced with a problem, is to ask, "What are other people doing about this?" While I have already commented on my lack of faith in the existence of large numbers of workable solutions that lie undiscovered "out there," it is clear that a knowledge of prevailing practice is essential when devising new solutions, if for no other reason than the excellent pedegogical one of knowing where to start.

c. Evaluative information. Some solutions have already been devised and have been, or are being, tested. It is obviously important to know what these solutions are and what their evaluations show.

d. Perspectives of other groups. I have repeatedly made the point that education has thus far composed its solutions largely from the point of view of its own perspective. That such an approach is not only hazardous but foolish I hope I have also documented. It is apparent that problem specifications are incomplete without the perspective of those who suffer with the problem, and without the perspective of those other groups, e.g., sociologists, psychologists, economists, political scientists, attorneys, physicians, and the like, who have a certain professional leverage. It is essential that these perspectives be accumulated and taken account of.

3. It would provide outputs to other arms in the system. The information arm having devised the information and problem specification packages referred to above would then make these available to other units who require this service. Included would be the research arm, the development arm, and the diffusion arm, all of which remain to be described.

Example of information arms such as those I have described are non-existent. There simply is no information agency now serving such a function. The national ERIC system or the School Research Information Service of Phi Delta Kappa are as close examples as we can find, with the former focussing heavily on research and the latter more heavily on prevailing practice. But both are still little more than automated abstract services; they do the same kinds of things that, in the past, we asked our research assistants to do for us. Certainly the vital element of pre-interpreted modules is missing, as is the scope of coverage required to meet emergent needs.

The Research Arm. Although research in general constitutes only one source of input it is such an important source, or at least, such a potentially important source, that I believe it deserves special mention. Now I do not delude myself about the shortcomings of the research community nor about the relative lack of utility which research findings have had to date. Nevertheless, one could hardly argue that it is not important, even vital, to base pedagogic practice on sound scientific knowledge as quickly as possible. Hence I believe we should make special provision for a research arm which would:

1. Continue the production of basic research knowledge out of

context to any specific operational problem. We are all aware, I am sure, of the absolute necessity for stockpiling knowledge even though we cannot see any immediate application for it. The instances in which apparently "useless" knowledge turned out to be vital after its discovery are many and do not bear repeating here.

2. Bear down heavily on the production of knowledge which is relevant to the solution of operating problems. Many practical questions and problems come up in the operational context that typically cannot be solved by the practitioner but are simply resolved by him arbitrarily. Often such problems could be very well informed by research but the research is lacking. A mechanism responsive to such problems is vital if research is to have its maximum social significance. I am well aware of the many difficulties that will beset us as we attempt to persuade the research community of the necessity for such activity; my own experience as a researcher and a research administrator for many years has convinced me that nothing will provide the kiss of death more quickly for a research problem than to label it "needed research." All the values and rewards of the research community militate against such activity. But nevertheless, operational knowledge is needed, and we shall have to devise ways of making it more attractive for the researcher to engage in its discovery.

There are extant examples of both basic and applied research mechanisms. Traditionally, the University has played the role of providing basic research knowledge; it is well equipped to do so and its

value and reward structure is shaped for that purpose. There is probably no existing agency or new agency that might be projected that would serve this function any better. In the matter of providing more applied research knowledge, however, we are not as well off. The so-called Research and Development Centers being supported by the U. S. Office of Education were intended by Congress, I believe, to serve this applied function, that is, to make a programmatic research thrust in selected applied areas. But that they have not accomplished this goal is commonly known; most of them have not yet identified a programmatic thrust or if they have, have not persuaded their staffs to attend to it. The R & D Center which has been most successful in my judgment, at the University of Pittsburgh, has, interestingly enough, not operated in this research arm mode at all but rather in the mode of the development arm, which I shall describe shortly. Hence we have a way to go before we can feel confident that applied research needs are well taken care of.

The Development Arm. So far we have been speaking only of problem identification, delineation of problem specifications, and marshalling of relevant information. Some agency has got to come up with a response or solution. This function is relegated to the development arm. The tasks include:

1. Designing a response. The design task is one which is frequently minimized or overlooked in education. Part of the reason for this lies in the funding patterns we have become accustomed to; whether we are submitting a budget request in-house or to an outside funding agency via the proposal route, it is always wise to pretend

that you already know the solution to the problem. Who will fund anyone who says he is in doubt? But as I have tried to point out, this assumption is more often than not dead wrong. Presumably the work of the halfway house and the information arm will provide delineation of the problem; the task of design is to identify possible alternative responses or solutions and to determine the relative probability of success for each. Only then can a sensible choice be made.

2. Producing components called for in the design. The design must be sufficiently well explicated so that the component parts (including tactics) are clear. The development staff then has the task of physically producing the required parts--the materials, teaching strategies, organizational forms, or whatever may be required. Each of these components must be tested to be sure that it comes up to design specification.

3. Fabricate the components into a functioning system. When the parts are developed they must be constructed into the system called for in the design.

4. Field test the fabricated system. Just because carburetors, fuel pumps, distributors, and other components of an automobile power plant work well in isolation on a laboratory bench and under the best possible conditions is no indication that they will function well when assembled into an actual engine and exposed to the worst possible conditions of the real world. A further system evaluation is required to be sure that the design specifications for the system are met.

Thus far I have spoken of the functions of the development arm as though it would carry out these functions itself, i.e., from what I will call a posture of direct intervention. But there are several problems with this posture. First, direct intervention costs a lot of money, and new money is always hard to find. Second, direct intervention would not take best advantage of the many resources already available and being spent, more or less at random, by the education industry, a matter I described in greater detail earlier. Hence it seems to me quite possible to conceive of a development agency which is not a direct intervener but a modulator in the sense of my amplifier tube analogy. In this case the development arm would perhaps still engage directly in designing solutions, i.e., in identifying that best alternative response, but might then be concerned with engaging, even coopting, other existing resources in order to get that alternative produced and fabricated. The development agency might then field test the fabricated system. It might serve, by way of analogy, as an Underwriter's Agency which first lists specifications (the "code") and then tests products to be sure they meet the code--that is what we mean by the "Underwriter's Label." The product that has the label is warranted to us and we may have whatever confidence in it that the code warrants.

Again, existing prototypes of development agencies are hard to come by. There are the twenty regional educational laboratories funded by ESEA, although not all of them are developer agencies in the sense

that I have used the term here. Insofar as they are development agencies they have tended to operate in the direct intervention rather than modulation mode. The Center for Educational Development currently being projected by the Indiana University School of Education is another example, although as I understand the intentions for this unit it also will tend to be a direct intervention agency. Certain Title III Centers and certain public school program staffs could also be cited. In the main, however, we lack viable units with the scope that I have described here.

The Diffusion Arm. The final component of the system that I am describing I will call the diffusion arm. This arm has three functions:

1. To inform the practitioner about available solutions and the nature of the problems which they are designed to ameliorate. The information and development arms of which I have spoken are far removed from everyday practice. Some agency must be concerned with communicating the results of the development activity back to the practitioner. Now it will be easy to confuse the function of this diffusion agency with that ordinarily ascribed to the sales arm in industry; they are parallel, perhaps, in the sense that both are concerned with contacting a "market," but the diffusion agency is less concerned with "selling" than it is with calling attention to viable solutions to operating problems. It opens a wider range of alternatives to the local practitioner. The practitioner must know about inventions and he must know something about their operating characteristics, assessed as honestly as possible and preferably based upon field tests conducted by that Underwriter's Agency, the development arm.

2. To demonstrate to the practitioner the operating characteristics of available solutions. We are quite accustomed to demonstrations in education. They are sometimes confused with field tests (new curricula, for example, are often demonstrated and field tested simultaneously) and most often they are carried out in unsystematic ways. Demonstrations have certain inherent problems; for example, they tend to show only the end result of an invention and not how one moves a school system to that point; they are necessarily constrained by the particular circumstances--the children, the teachers, the facilities, etc., in which they are carried on--so that their generalizability is questionable, and others. Thus one immediate task for any diffusion staff to undertake will be to invent appropriate demonstration strategies that overcome some of these difficulties, as for example, by carrying on the demonstration in the potential adopter's own school rather than in some centrally located demonstration site. The important characteristics of demonstrations, however mounted, are that they be credible and that they give the potential adopter the opportunity to determine whether the solution fits his problem.

3. To assist in the training of personnel who will actually operate the innovation. I mentioned early the utilization arm's function as a trainer of personnel. The diffusion arm shares this function, not so much in training the personnel who will use the innovation as in training the trainers of those persons. Thus the diffusion arm has a responsibility for training the training staffs of utilization centers or halfway houses.

Prototypes of diffusion centers, like most components of the proposed system, are hard to find. Old style university schools were presumed to perform this function, among others, but generally they failed because they were not credible--their circumstances were too markedly different from those of the typical school. Some Title III projects have attempted this role but typically only in relation to a particular innovation. Then too these projects tend to service only a single district rather than many districts. Certain foundation projects, notably the Kettering Foundation's I/D/E/A program, have tried to carry on some of these tasks but also have tended to be too narrowly focussed and to lack credibility.

* * *

I have tried to sum up the elements of the system I have been describing in Figure 1. I assert that there must be an essentially circular flow among four basic components: the utilization arm or halfway house, the information arm, the development arm, and the diffusion arm. Each has certain particular functions as noted in the Figure, and each has certain outputs for the next member of the chain. While the diagram does not show it there is also a feedback channel that runs counter to the flow arrows which are shown, so for example, there may be feedback from a utilization unit to a diffusion unit about the relative utility of a particular solution in that local setting, from a development unit to an information unit about the relative adequacy of the information modules received or the range of solution alternatives that are delineated, etc.

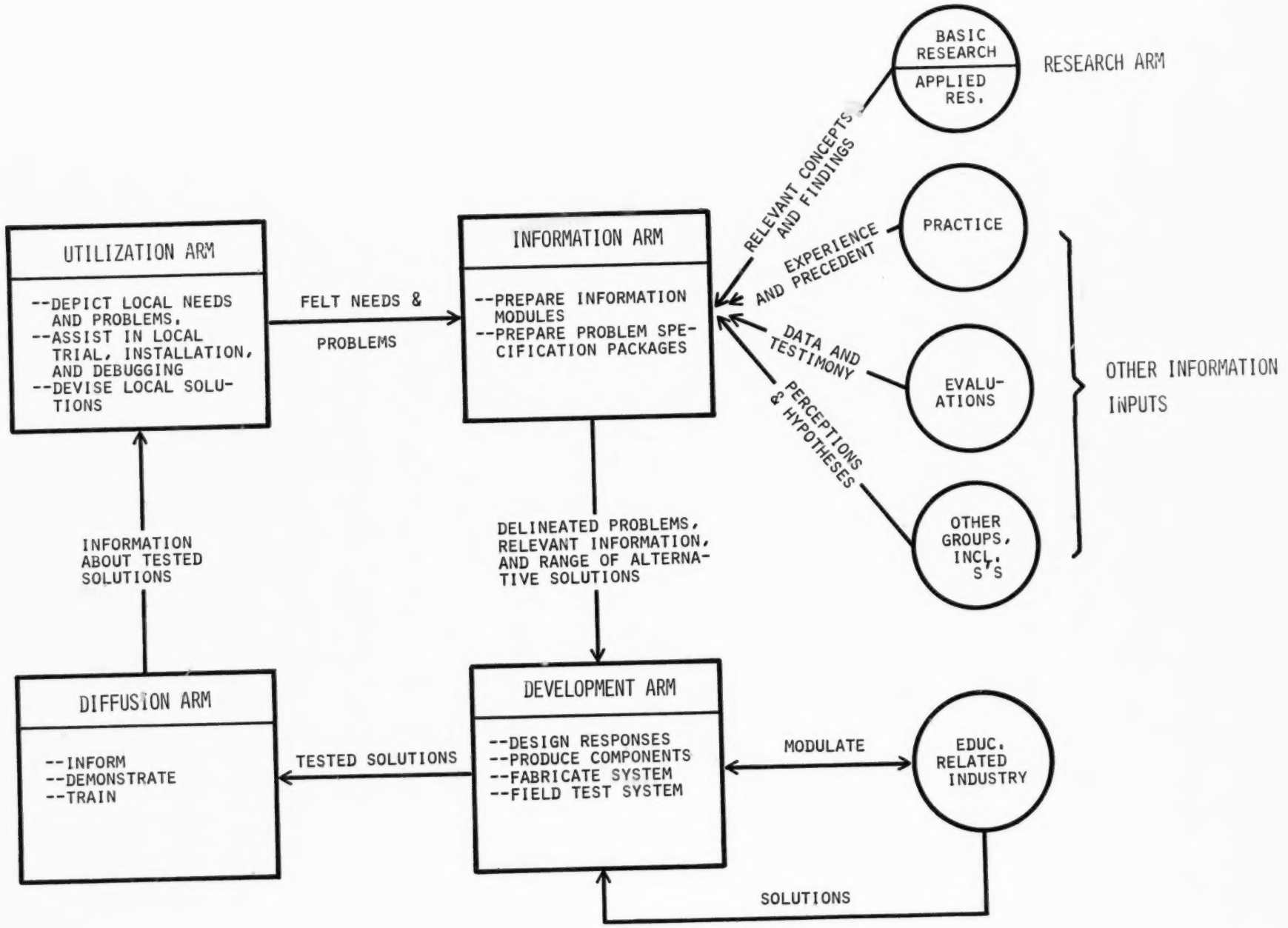

FIGURE 1: MODEL OF A NATIONAL SYSTEM FOR EDUCATIONAL CHANGE.

I have also tried to indicate that there are four major sources of input information that must be utilized: research, practice, evaluations, and other groups with relevant perception. The research component I have separated from the other three because it seems to be the most scientifically useful, although not necessarily the most important in any actual situation. I have also separated it because major agencies already exist to carry out the research function.

In relation to the development arm I have tried to indicate that the agency may operate by direct intervention, producing its own tested solutions to problems, or, in the analogy of the amplifier tube, may operate by modulating other existing resources in the form of educationally relevant industry.

Finally, I have tried to show that change is effectively carried on in the looping process. The utilization arm passes on felt needs and problems to the information arm. That arm processes these felt needs and problems into problem specification packages, and also prepares related information modules. Some information relevant to both information modules and problem specification packages is also obtained from external sources: research, practice, evaluation, and related groups. The information arm passes all of these materials, including a delineated range of alternative solutions, to the development arm, which, either by direct intervention or modulation of other resources, produces tested solutions. These in turn are passed to the diffusion arm which has the responsibility for informing, demonstrating, and training practitioners in the use of the

tested solutions. Finally, the utilization arm picks up those solutions which it perceives to be relevant to the felt needs and problems which it has identified and works toward their installation in the local school.

Can Such a System be Implemented?

The system that I have described must sound like a massive bureaucracy indeed. The question certainly must come to mind whether such an approach could ever really be implemented. This question resolves itself in my thinking along four dimensions: size, cost, availability of personnel, and political viability.

The matter of size is most easily taken care of. How many of each kind of unit would be needed? Obviously the halfway houses would need to be most numerous, since they must work directly with the local practitioners. For a variety of reasons which I will not review here I estimate that there ought to be such a halfway house for every 100,000 pupils enrolled in public education. That means that a halfway house may serve multiple districts in some cases but in the case of very large districts there may be more than one halfway house per district. Since the number of students currently enrolled in public education is on the order of 45 million[8] there ought to be approximately 450 halfway houses nationally.

The information centers which I have described can and should be a great deal more centralized. The present ERIC system would make a

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[8]The number for the academic year 1967-68 is estimated at 45,454,390. See Table 17, Ranking by States 1967-68, Research Report #1, NEA Research Division, Washington, D. C.

reasonable nucleus, but of course its functions would have to be redefined and expanded. In terms of size, however, the present central agency plus 20 satellites seems about right to me. I would reserve judgment as to whether these satellites ought to be organized around substantive areas as they now are or in some other way.

The existing regional educational laboratories begin to approximate what I have called development centers. Again the 20 laboratories in operation, suitably redefined, seems about right in terms of number.

The diffusion arm is perhaps the most difficult to predict reasonably, since we have had less experience with this kind of agency than with the others. I would certainly suppose that these centers ought to be dispersed to approximate the present dispersion of pupils. There should be, I believe, about one diffusion center for each 10 or so halfway houses; thus we would require about 45 diffusion agencies.

Finally, although the research arm is for purposes of educational change, only one input source, it is nevertheless so important that we ought to give it particular attention. So far as the applied aspect is concerned, the present R & D Centers offer a kind of prototype, however weak. There are now nine of these centers (12, if one counts the two vocational centers and the Johns Hopkins Center, which are funded in different ways than typical), but this number ought to be increased to about 20. Again, I would wish to reserve judgment about the mode of their organization. The basic research should not be conducted through special agencies but through the agencies that now carry it on, that is, mainly through the Universities. We will thus not have to make special institutional provision for this activity.

Thus I am suggesting a system encompassing a total of 556 agencies. Of this number the large majority, 450, would be local utilization centers or halfway houses, an average of nine per state. Forty-five would be diffusion centers, 20 would be development centers, 21 would be information agencies, and 20 would be applied research centers.

How much would such a system cost, and where is the money to come from? School systems currently spend about $4.96 per pupil on textbooks.[9] I would suggest a roughly comparable figure, say $5 per pupil, be spent in support of halfway houses. I believe that half this amount should come from the local districts being served and the remaining half from the State. It would not seem to me unreasonable if the State should decide to garner its half from federal ESEA Title III money. The annual bill for the typical center serving 100,000 pupils would thus be a half-million dollars; the total annual bill for 450 halfway houses would be $225 million.

The 45 diffusion centers seem to qualify very well for funding under existing Title III legislation. Each diffusion center to be effective would require, in my judgment, a budget on the order of $2 million. The total annual bill for 45 centers: $90 million.

The development centers are supportable under current provisions of ESEA Title IV, although some budgetary extension would be necessary. On the basis of present experience with the regional laboratories I would

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[9] Guidelines for an Adequate Investment in Instructional Materials, NEA, 1967, p. 22.

suggest that each center ought to spend perhaps five times as much as the average existing laboratory, or about $5 million annually. Total annual bill for 20 development centers: $100 million.

The information centers are fundable from the same source as existing ERIC Centers, via the USOE Bureau of Research, although again, a sizeable appropriation adjustment would have to be made. I would recommend a budget of $2 million for each satellite and $5 million for the central agency. Total annual bill for these 21 information agencies: $45 million.

Finally, I believe that the applied research centers could profitably spend about $5 million per year each, and that expenditures for basic research should reach a level of about $50 million annually, expended through the same agencies that now engage in such research activity. These funds could come under authorization of ESEA Title IV provided Congress were willing to increase the appropriation. Total annual bill for basic research and for support of 20 applied research centers: $150 million.

The total annual bill for all activities described is thus $610 million. Of this amount $150 million would go for research and $460 million into problem identification-development-diffusion-adoption kinds of activity. The ratio of 4:1 is certainly modest. The total amount of money required, it may be noted, is only on the order of one-sixth of the present total <u>national</u> expenditure for education. It is very clear not only that we can afford such a system but that it would not require additional money to fund; all that is necessary is some reallocation of funds already being expended, and probably foolishly.

So far we have seen that the system proposed is quite reasonable both in terms of size and cost. How about personnel?

Here we arrive at the toughest bind in the picture. Obviously the system I have described will require many people--perhaps as many as 30,000 professional or para-professional persons and probably no fewer than 20,000. Moreover, in the main we are talking about types of professional roles that are not now in existence, or at least, for which training programs are not now available. I suppose that if such a system were to be set up tomorrow the various agencies would do what present Title III projects, regional laboratories, and the like do: raid the classrooms or administrative offices of the schools and universities of bright young persons who have a spirit of adventure and then train them as well as they can on the job. Indeed, in most cases the persons involved have to find ways to train themselves. Such a state of affairs would be very chaotic indeed. Unless we can find ways of developing training programs for such persons and begin to train them in large numbers, the whole idea proposed here would be worthless. This is going to be the big priority training job for any School of Education today.

Finally, how about the political feasibility of the idea? Can Congress be persuaded to take some massive step such as this? Can the state departments of education be expected to fall in with such an idea and provide their share of the resources? Can local school officials be expected to give up some of their autonomy to an extra-district unit like the utilization center? Surely these are all tough problems, and my own cynical prognosis is that the chances are not too good. My hope is that the urgency of the educational situation, already very apparent to any thoughtful observer, will force some kind of massive change in national strategy.

The political problem, of course, is that of finding a suitable quid-pro-quo for all concerned. If the local superintendent hates to give up some of his authority and prerogative we must find a way to reward him for doing so. If the state superintendent prefers to keep his Title III money flexible in order to maintain his own authority and serve the political patronage system we must find a way to coopt him. If the Congress is reluctant to take a directive position on a national system we must find a way to make that action palatable. But these are problems requiring the working out of effective political tactics. This may not be, in the current idiom, the educationist's bag, but the educationist had better find out soon how to play in this arena.

What Can We All Do?

Those of you who have managed to follow my tortured thinking thus far must be wondering how in heaven's name you could ever relate to such an effort, if you chose to do so. This all sounds very fanciful and distant, involving huge agencies with gigantic budgets. All you really wanted from me today was a few words about the nature of change. Now that I have come this far, just what do I propose that each of you, given your arena of competence and responsibility, can do about it?

Well, I will not pretend to be an expert about every phase of educational operation. I really don't know what to suggest should be done by local school people, by state department personnel, by Title III project staffers, etc. What I do know something about is the University, so I shall limit my comments to what I believe a University, and particularly a University School of Education, can do.

Let me begin at the obvious place. If the University has had a unique function in the past it has been in the arena of inquiry. Obviously we are in need of a great deal of research, and that is certainly one thing which the Universities can do well. There are a great many problems attendant on doing educational research, ranging all the way from inherent methodological difficulties in conventional research paradigms to attitudes in the research community regarding the appropriateness of inquiring about real rather than laboratory problems. As a former director of a large educational research bureau I am well aware of these difficulties and do not wish to minimize them in any way. But I do wish to make the point that at least here we know what the problem is, and that we are already beginning to develop some techniques for dealing with it. Hence I do not see research as a major stumbling block.

Certainly another thing which a University can do is to provide adequate models for the kinds of activity that are described here. Schools of Education have a well-established precedent for developing such models in the traditional university or laboratory school. The recent history of such schools has not been encouraging and properly so, for they have not been very adequate models of anything. But this fact should not lead us to believe that the basic idea of models is essentially destroyed by the failure of this particular model to work well in recent years.

I think we are fortunate at Indiana University that steps have already been taken toward the provision of models in at least certain areas. We have an ERIC Center in the area of reading, which might easily be expanded, at least on an experimental basis, to deal with some of the functions that I have talked about. The Bloomington Metropolitan School

District, with the University's full support and cooperation, is moving toward the use of a reorganized University Elementary School in roughly the ways envisioned for a local utilization center. The School of Education using other resources from University School and from other sources is now in process of conceptualizing a Center for Educational Development, which will operate somewhat like the development arm I talked about. We do not have a model as yet of a diffusion center but I believe that we must work toward getting one. It is of course not my intention to try to make the agencies I have mentioned, or others that might be developed later, conform to the parameters and requirements that I have outlined here; these must evolve as we gain in experience and insight. But the notion of building models is very germane to a University and I wish to encourage that activity all that I can.

A third thing which the University can do is to provide certain kinds of consultant assistance to the schools of the state as they experiment with these approaches. Service is a long standing tradition in a state university and I for one believe strongly in the service responsibility of places like Indiana University. It is my impression that the particular <u>modes</u> by which universities have traditionally rendered such field service are probably inappropriate to today's needs, but again it is the essential idea that counts. I hope that we will be able to maintain meaningful relationships with the schools of the state, the state department of education, the other state-supported universities, and with the many other agencies that operate in areas related to education, to move ahead, at least in principle, on the kinds of ideas I have talked about.

Most importantly, I believe we need to address ourselves to the problem of training the many new kinds of personnel who would be required in such a system, to change the pre-service training of teachers to take account of these ideas, and to work with in-service teachers on a meaningful re-training program. We have already taken some steps in this direction; projects like CITE, INSITE, and TEAM come readily to mind. The TTT proposal recently submitted as a joint effort of the College of Arts and Sciences, the Bloomington Metropolitan School District, and the School of Education, and about whose funding we have reason to be optimistic, is another case in point. But we cannot delude ourselves that this will be an easy task. Everything that we now believe, and that we now do, needs to be examined critically to see whether it is responsive to here and now needs.

We are very unclear at this point what the [illegible] roles will be. We do not know how the classroom teacher or the local administrator will relate to the new agencies and the new role incumbents. We do not know the kind or level of professional competencies required. We do not know what kinds of persons with what kinds of abilities we can recruit for these new positions. We do not know the organizational, financial, or logistic problems which will be created. We do not know what the curriculum will look like. But these are the very kinds of problems about which educators have prided themselves as being expert; who is better equipped than we to wrestle with them?

I believe I can summarize what I am saying about the role of the University in the same two words I used before; <u>relevance</u> and <u>impact</u>.

We must examine what we are doing to be sure that it is relevant and has an impact where it counts. We must try to project the future well enough to find out what would be relevant and what would have impact given those conditions. We must continually test our new organizational, curricular, training, research, service, and modelling activities against these criteria. Who can doubt that at just this moment we are sufficiently irrelevant and have too little impact to make a difference? And who can doubt that when we <u>can</u> demonstrate relevance and impact that we will have transformed the educational world? That's what we need: that's what we must strive for; that's what we <u>shall</u> have.

Relevance and impact....

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